What is claimed is:

1. A method of tone reproduction of an image with halftone dots by forming dots arranged at regular intervals and having different sizes on an image reproduction medium based on a binary or multivalued image out of digital image data representing a single color component or a plurality of color components, comprising the steps of:

growing the halftone dots in a circular or elliptical shape in a first transformation zone from a halftone percentage of 0 % to a first highlight percentage;

growing the halftone dots while changing from the circular or elliptical shape to a square or rhomboidal shape in a second transformation zone from the first highlight percentage to a second highlight percentage greater than said first highlight percentage;

growing the halftone dots in a square or rhomboidal shape in a third transformation zone from the second highlight percentage to a second shadow percentage;

growing the halftone dots while changing from the square or rhomboidal shape to a circular or elliptical shape in a fourth transformation zone from the second shadow percentage to a first shadow percentage greater than said second shadow percentage; and

growing the halftone dots in a circular or elliptical shape in a fifth transformation zone from said first shadow percentage to a percentage of 100 %.

2. A method according to claim 1, wherein said second highlight percentage is at most 48 % and said second shadow percentage is at least 52 %.

3. A method according to claim 1, wherein when the halftone dots are grown in the square or rhomboidal shape, they are successively grown along each of the sides thereof while minimizing any displacement of the center of gravity of the halftone dots.

4. An apparatus for outputting a halftone plate of halftone dots, comprising:

first halftone dot generating means for growing the halftone dots in a circular or elliptical shape in a first transformation zone from a halftone percentage of 0 % to a first highlight percentage;

second halftone dot generating means for growing the halftone dots while changing from the circular or elliptical shape to a square or rhomboidal shape in a second transformation zone from the first highlight percentage to a second highlight percentage greater than said first highlight percentage;

third halftone dot generating means for growing the halftone dots in a square or rhomboidal shape in a third transformation zone from the second highlight percentage to a second shadow percentage;

fourth halftone dot generating means for growing the

halftone dots while changing from the square or rhomboidal shape to a circular or elliptical shape in a fourth transformation zone from the second shadow percentage to a first shadow percentage greater than said second shadow percentage; and

fifth halftone dot generating means for growing the halftone dots in a circular or elliptical shape in a fifth transformation zone from said first shadow percentage to a percentage of 100 %.

5. An apparatus according to claim 4, wherein said second highlight percentage is at most 48 % and said second shadow percentage is at least 52 %.

6. An apparatus according to claim 4, wherein when the halftone dots are grown in the square or rhomboidal shape, they are successively grown along each of the sides thereof while minimizing any displacement of the center of gravity of the halftone dots.

7. A halftone plate expressing highlight and shadow areas of a subject with sizes of halftone dots, comprising:

a first halftone plate section with the halftone dots formed in a circular or elliptical shape in a first transformation zone from a halftone percentage of 0 % to a first highlight percentage;

a second halftone plate section with the halftone dots

grown while changing from the circular or elliptical shape to a square or rhomboidal shape in a second transformation zone from the first highlight percentage to a second highlight percentage greater than said first highlight percentage;

a third halftone plate section with the halftone dots formed in a square or rhomboidal shape in a third transformation zone from the second highlight percentage to a second shadow percentage;

a fourth halftone plate section with the halftone dots grown while changing from the square or rhomboidal shape to a circular or elliptical shape in a fourth transformation zone from the second shadow percentage to a first shadow percentage greater than said second shadow percentage; and

a fifth halftone plate section with the halftone dots formed in a circular or elliptical shape in a fifth transformation zone from said first shadow percentage to a percentage of 100 %.

8. A halftone plate according to claim 7, wherein said second highlight percentage is at most 48 % and said second shadow percentage is at least 52 %.

9. A halftone plate according to claim 7, wherein when the halftone dots are grown in the square or rhomboidal shape, they are successively grown along each of the sides thereof while minimizing any displacement of the center of

gravity of the halftone dots.

10. A printed material expressing highlight and shadow areas of a subject with sizes of halftone dots, comprising:

a first print section with the halftone dots formed in a circular or elliptical shape in a first transformation zone from a halftone percentage of 0 % to a first highlight percentage;

a second print section with the halftone dots grown while changing from the circular or elliptical shape to a square or rhomboidal shape in a second transformation zone from the first highlight percentage to a second highlight percentage greater than said first highlight percentage;

a third print section with the halftone dots formed in a square or rhomboidal shape in a third transformation zone from the second highlight percentage to a second shadow percentage;

a fourth print section with the halftone dots grown while changing from the square or rhomboidal shape to a circular or elliptical shape in a fourth transformation zone from the second shadow percentage to a first shadow percentage greater than said second shadow percentage; and

a fifth print section with the halftone dots formed in a circular or elliptical shape in a fifth transformation zone from said first shadow percentage to a percentage of 100 %.

11. A printed material according to claim 10, wherein said second highlight percentage is at most 48 % and said second shadow percentage is at least 52 %.

12. A printed material according to claim 10, wherein when the halftone dots are grown in the square or rhomboidal shape, they are successively grown along each of the sides thereof while minimizing any displacement of the center of gravity of the halftone dots.